

A STUDY OF AGGREGATES BEHAVIOUR
WITH GEOTEXTILE INTERFACE
USING MBR MOULD

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ABSTRACT

The objective of this study is to investigate the degradation behaviour of aggregates by using the MBR (Modified Bearing Ratio) mould with a geotextile interface.

The MBR mould with dimensions of 400 mm diameter and 500 mm high is used. The mould is separated into two halves of 250 mm height each. The large size of mould is used to reduced the confining effect of a mould on the behaviour of aggregates under test.

The study was done in dry condition. Granite aggregates were used throughout the study. The aggregates used are of three different gradations i.e. well graded, uniformly graded and gap graded. Compaction of the aggregates were carried out by using the 2.5 kg rammer with a drop height of 300 mm and the 4.5 kg rammer with a drop height of 450 mm.

The geotextile used as an interface used was the DUPONT 3407 non-woven type. The geotextile was placed at the centre of mould with the different gradations of aggregates tested filling the upper and lower half of the MBR mould. The resulting degradation behaviour of the aggregates upon compaction was determined from the resulting grain size distribution curves.

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CHAPTER ONE

INTRODUCTION

A highway pavement consist of several layers of materials. The primary function of these layers are to distribute the traffic load from surface to subgrade. The subgrade usually consist of weak soil. The overlaying layers therefore act as a protector to the subgrade. Amongst the most important layers in a pavement system are base and subbase courses. The major role of these layers is to ensure the load reaching the subgrade is sufficiently small so that the subgrade is not being overstressed.

The design of the pavement is controlled mainly by the bearing capacity of the subgrade. When the subgrade deforms, the overlaying layers also deform in the same manner and extent. The basic design criteria in pavements is to determine the thickness required to distribute the applied load to the subgrade.

The following factors are required to be considered when designing the thickness of a highway pavement :-

- i. The number of applied wheel load and the